

Application Serial No. 09/684,383
Amendment After Final dated 10 May 2005
Reply to Office Action dated 14 March 2005
and Advisory Action mailed 28 April 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-23 (canceled).

Claim 24 (currently amended): An isolated protein of the TGF- β family which has mitogenic and/or differentiation-inductive activity and is coded by a DNA molecule selected from the group consisting of

- (a) a DNA molecule comprising the nucleotide sequence of nucleotides 866-1183 of SEQ ID NO:1;
- (b) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID ~~NO~~NO:3, or the following fragments: nucleotides 131-1186 of SEQ ID NO:3, nucleotides 839-1186 of SEQ ID NO:3, and nucleotides 869-1186 of SEQ ID NO:3;
- (c) a DNA molecule encoding the amino acid sequence encoded by (a) or (b); and
- (d) a DNA molecule comprising a nucleotide sequence (i) which hybridizes with a complement of one of the DNA molecules from (a) and (b) under stringent hybridization conditions in 6x SSC at 62-66° C followed by one hour wash with 0.6x SSC and 0.1% SDS at 62-66° C and (ii) which encodes a protein comprising an amino acid sequence containing seven conserved cysteine residues, said seven conserved cysteines corresponding to cysteine residues at positions 247, 276, 280, 316, 317, 349 and 351 in SEQ ID NO:2.

Claim 25 (currently amended): An isolated protein which has an amino acid sequence selected from the group consisting of SEQ ID NO:4; a mature protein that starts with one of amino

Application Serial No. 09/684,383
Amendment After Final dated 10 May 2005
Reply to Office Action dated 14 March 2005
and Advisory Action mailed 28 April 2005

acids 217-236 or ~~238-240~~ 240 and ends with amino acid 352 of SEQ ID NO:2; a mature protein which comprises at least the region of seven cysteine residues, said region comprising amino acid residues 247-352 of SEQ ID NO:2; a mature protein that starts with one of amino acids 217-240 and ends with amino acid 352 of SEQ ID NO:4; and a mature protein which comprises at least the region of seven cysteine residues, said region comprising amino acid residues 247-352 of SEQ ID NO:4.

Claim 26 (previously presented): A heterodimeric protein comprising a monomer of a first protein of the TGF- β family and a monomer of another protein from the TGF- β family, said first protein has mitogenic and/or differentiation-inductive activity and is coded by a DNA molecule selected from the group consisting of

(a) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID NO:1, or the following fragments: nucleotides 128-1183 of SEQ ID NO:1, nucleotides 836-1183 of SEQ ID NO:1, and nucleotides 866-1183 of SEQ ID NO:1;

(b) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID NO:3, or the following fragments: nucleotides 131-1186 of SEQ ID NO:3, nucleotides 839-1186 of SEQ ID NO:3, and nucleotides 869-1186 of SEQ ID NO:3;

(c) a DNA molecule encoding the amino acid sequence encoded by (a) or (b); and

(d) a DNA molecule comprising a nucleotide sequence (i) which hybridizes with a complement of one of the DNA molecules from (a) and (b) under stringent hybridization conditions in 6x SSC at 62-66° C followed by one hour wash with 0.6x SSC and 0.1% SDS at 62-66° C and (ii) which encodes a protein comprising an amino acid sequence containing seven conserved cysteine residues, said seven conserved cysteines corresponding to cysteine residues at positions 247, 276, 280, 316, 317, 349 and 351 in SEQ ID NO:2.

Claim 27 (previously presented): A pharmaceutical composition comprising a protein and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers, said protein has

Application Serial No. 09/684,383
Amendment After Final dated 10 May 2005
Reply to Office Action dated 14 March 2005
and Advisory Action mailed 28 April 2005

mitogenic and/or differentiation-inductive activity and is coded by a DNA molecule selected from the group consisting of

- (a) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID NO:1, or the following fragments: nucleotides 128-1183 of SEQ ID NO:1, nucleotides 836-1183 of SEQ ID NO:1, and nucleotides 866-1183 of SEQ ID NO:1;
- (b) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID NO:3, or the following fragments: nucleotides 131-1186 of SEQ ID NO:3, nucleotides 839-1186 of SEQ ID NO:3, and nucleotides 869-1186 of SEQ ID NO:3;
- (c) a DNA molecule encoding the amino acid sequence encoded by (a) or (b); and
- (d) a DNA molecule comprising a nucleotide sequence (i) which hybridizes with a complement of one of the DNA molecules from (a) and (b) under stringent hybridization conditions in 6x SSC at 62-66° C followed by one hour wash with 0.6x SSC and 0.1% SDS at 62-66° C and (ii) which encodes a protein comprising an amino acid sequence containing seven conserved cysteine residues, said seven conserved cysteines corresponding to cysteine residues at positions 247, 276, 280, 316, 317, 349 and 351 in SEQ ID NO:2.

Claim 28 (previously presented): A pharmaceutical composition comprising the protein of claim 26 and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

Claim 29 (canceled).

Claim 30 (previously presented). The heterodimeric protein of claim 26, wherein the other member of the TGF- β family is activin/inhibin or a bone morphogenetic protein.

Application Serial No. 09/684,383
Amendment After Final dated 10 May 2005
Reply to Office Action dated 14 March 2005
and Advisory Action mailed 28 April 2005

Claim 31 (previously presented). A homodimeric protein comprising two monomers of a protein that has mitogenic and/or differentiation-inductive activity and is coded by a DNA molecule selected from the group consisting of

- (a) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID NO:1, or the following fragments: nucleotides 128-1183 of SEQ ID NO:1, nucleotides 836-1183 of SEQ ID NO:1, and nucleotides 866-1183 of SEQ ID NO:1;
- (b) a DNA molecule comprising the nucleotide sequence shown in the SEQ ID NO:3, or the following fragments: nucleotides 131-1186 of SEQ ID NO:3, nucleotides 839-1186 of SEQ ID NO:3, and nucleotides 869-1186 of SEQ ID NO:3;
- (c) a DNA molecule encoding the amino acid sequence encoded by (a) or (b); and
- (d) a DNA molecule comprising a nucleotide sequence (i) which hybridizes with a complement of one of the DNA molecules from (a) and (b) under stringent hybridization conditions in 6x SSC at 62-66° C followed by one hour wash with 0.6x SSC and 0.1% SDS at 62-66° C and (ii) which encodes a protein comprising an amino acid sequence containing seven conserved cysteine residues, said seven conserved cysteines corresponding to cysteine residues at positions 247, 276, 280, 316, 317, 349 and 351 in SEQ ID NO:2.

Claim 32 (previously presented). A monomeric protein comprising the protein of claim 24.

Claim 33 (previously presented). A pharmaceutical composition comprising the protein of claim 31 and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

Claim 34 (previously presented): A pharmaceutical composition comprising the protein of claim 32 and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

Application Serial No. 09/684,383
Amendment After Final dated 10 May 2005
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and Advisory Action mailed 28 April 2005

Claim 35 (previously presented): The protein according to claim 25, wherein said protein has an amino acid sequence selected from the group consisting of a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:4 and a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:4.

Claim 36 (previously presented): A pharmaceutical composition comprising a protein and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers, said protein has an amino acid sequence selected from the group consisting of a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:4 and a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:4.

Claim 37 (previously presented): A heterodimeric protein comprising a monomer of a first protein of the TGF- β family and a monomer of another protein from the TGF- β family, said first protein has an amino acid sequence selected from the group consisting of a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:4 and a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:4.

Claim 38 (previously presented): A pharmaceutical composition comprising the protein of claim 37 and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

Application Serial No. 09/684,383
Amendment After Final dated 10 May 2005
Reply to Office Action dated 14 March 2005
and Advisory Action mailed 28 April 2005

Claim 39 (previously presented): The heterodimeric protein of claim 37, wherein the other member of the TGF- β family is activin/inhibin or a bone morphogenetic protein.

Claim 40 (previously presented): A homodimeric protein comprising two monomers of a protein that has an amino acid sequence selected from the group consisting of a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:2, a mature protein that starts with amino acid 236 and ends with amino acid 352 of SEQ ID NO:4 and a mature protein that starts with amino acid 237 and ends with amino acid 352 of SEQ ID NO:4.

Claim 41 (previously presented): A pharmaceutical composition comprising the protein of claim 40 and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

Claim 42 (previously presented): A monomeric protein comprising the protein of claim 35.

Claim 43 (previously presented): A pharmaceutical composition comprising the protein of claim 42 and pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers.

Claim 44 (previously presented): A pharmaceutical composition comprising a protein and a pharmaceutically acceptable carrier or auxiliary substances, diluents or fillers, said protein selected from the group consisting of SEQ ID NO:2; SEQ ID NO:4; a mature protein that starts with one of amino acids 217-240 and ends with amino acid 352 of SEQ ID NO:2; a mature protein which comprises at least the region of seven cysteine residues, said region comprising amino acid residues 247-352 of SEQ ID NO:2; a mature protein that starts with one of amino acids 217-240 and ends with amino acid 352 of SEQ ID NO:4; and a mature protein which comprises at least the region of seven cysteine residues, said region comprising amino acid residues 247-352 of SEQ ID NO:4.